CLAIMS

1. A method, including

determining a first set of link parameters for transmitting messages from a transmitter to a receiver;

attempting to send a plurality of packets using said first set of link parameters; and

determining a second set of link parameters in response to a frequency of dropped packets in said plurality of packets.

2. A method, including

determining a plurality of parameters for a communication channel, said parameters collectively having an effect on a result of communicating using said communication channel;

adjusting said plurality of parameters for said communication channel, in response to performance of said communication channel.

3. A method as in claim 2 including using said communication channel with said adjusted parameters.

4. A method, including

determining a set of values for at least one parameter in a communication system, said parameter being associated with a plurality of layers of an OSI model communication system;

using said communication system using said first values;

obtaining characteristics of said communication system in response to said first values;

adjusting a plurality of said values in conjunction in response to said characteristics; and

using said communication system in response to said adjusted values.

5. A method as in claim 4, wherein said adjusting includes dynamically selecting a set of altered values in response to said characteristics, said set of altered values including at least two changes to said parameters, said set of altered values having been determined to be superior to altered values having only one change to said parameters.

6. A method as in claim 4, wherein said at least one parameter includes at least one of: a payload element size, a message size value, a set of acknowledgment and retransmission values, a TDD duty cycle value.

7. A method as in claim 4, wherein said at least one parameter includes at least two of: an antenna selection value, a power level value, a channel selection value,

a modulation type value, a symbol rate value, an error code type value, a set of equalization values.

8. A method as in claim 4, wherein said communication system includes a plurality of distinguishable channels, said channels being distinguished using at least one of: frequency division, time division, space division, spread spectrum code division.

9. A method as in claim 4, wherein said communication system includes a plurality of distinguishable channels, said channels being distinguished using at least two of: frequency division, time division, space division, spread spectrum code division.

10. A method as in claim 4, wherein said communication system includes a wireless communication link.

11. A method as in claim 4, wherein said communication system is subject to at least one of: interference effects, multipath effects, both interference effects and multipath effects.

12. A method as in claim 4, wherein said plurality of layers include at least one of: a physical layer, a media access layer, a network layer, a transport layer, an application layer.

13. A method as in claim 4, wherein said adjusting includes adaptively calculating a newer set of said values for said communication link in response to a combination of an older set of said values and an adjusted set of said values.

14. A method is in claim 13, wherein said combination is responsive to a hysteresis parameter.

15. A method as in claim 4, wherein said adjusting is responsive to a type of protocol being used by at least one of the group: a physical layer, a media access layer, a network layer, a transport layer, an application layer.

16. A method as in claim 15, wherein said adjusting is responsive to whether an application layer protocol includes asymmetric transfer of information.

17. A method as in claim 15, wherein said adjusting is responsive to whether an application layer protocol includes voice or video information.

18. A method, including

determining a unit of time independent of a number of data bits to be sent in a TDMA system;

sending, within a TDMA frame in said TDMA system, a section within said frame including (a) a set of parameters for sending said data bits, and (b) an allocated number of said independent units of time.

19. A method as in claim 18, including

receiving a message having a plurality of data bits, said plurality of data bits being larger than capable of being sent within said allocated number of units of time;

fragmenting said message into a initial element and a remainder element, said initial element being capable of being sent within said allocated number of units of time; and

sending a portion of said message corresponding to said initial element.

20. A method as in claim 18, including

receiving a message having a plurality of data bits, said plurality of data bits being larger than capable of being sent within said allocated number of units of time;

sending an initial element, said initial element being capable of being sent within said allocated number of units of time;

waiting for an acknowledgment of said initial element;

(a) upon receiving said acknowledgement, sending a portion of said message corresponding to a next said initial element, and (b) upon not receiving said ac-

knowledgement within a selected time, transmitting a portion of said message corresponding to a dynamically determined new said initial element.

21. A method, including

determining a unit of time independent of a number of data bits to be sent in a TDMA system;

sending, within a first TDMA frame in said TDMA system, a request within said frame including a number of data bits buffered for sending;

sending, within a second said TDMA frame, a message including (a) a set of parameters relating to sending said data bits, and (b) an allocated number of said independent units of time, said allocated number being responsive to said number of data bits; and

sending, within said second TDMA frame, a message having a number of data bits capable of being fit into said allocated number of said independent units of time according to said set of parameters.

22. A method including

maintaining a set of corresponding values for a plurality of parameters in a communication system;

adjusting a plurality of said set of values in response to a performance measure in said communication system;

whereby said corresponding values are collectively optimized with regard to said performance measure.

23. A method as in claim 22, wherein said parameters include a plurality of parameters selected from the group: antenna parameters, power level, channel selection, modulation type, symbol rate, error code, equalization parameters, message size, acknowledgement and retransmission, time-division frame parameters.

24. A method as in claim 22, wherein said performance measure is responsive to either an interference value or a multipath value.

25. A method as in claim 22, wherein said performance measure is responsive to either an intersymbol interference value or an intrasymbol interference value.

26. A method as in claim 22, wherein said performance measure is responsive to information throughput.

27. A method as in claim 22, wherein said performance measure is responsive to sending at least one message using said set of values.

28. A method as in claim 22, wherein said parameters are adjusted in at least one group of more than one parameter.

29. A method as in claim 28, wherein said group includes a multicast group or a broadcast group.

30. A method as in claim 22, wherein said parameters include at least one of the following:

at least one parameter in a first layer of an OSI model communication system and at least one parameter in a second layer of said OSI model communication system;

a plurality of parameters in said first layer; or

a plurality of parameters in said second layer.

31. A method as in claim 30, wherein said first layer and said second layer include at least one of the following: a PHY layer, a MAC layer.

32. A method as in claim 30, wherein said parameters include at least a first plurality of parameters in said first layer and at least one parameter in said second layer.

33. A method as in claim 30, wherein said parameters are adjusted in response to information regarding characteristics of said communication link obtained in response to use of said communication link.

34. A method as in claim 33, including further use of said communication link using said adjusted parameters.

35. A method, including

optimizing a plurality of communication parameters in a point-to-multipoint communication system, said optimization including

time-varying adjustment of said plurality of communication parameters for a set of independent communication channels in said communication system, said time-varying adjustment being responsive to at least one of statistical or time-varying aspects of each said communication channel;

wherein said time-varying adjustment is independent with regard to each said independent communication channel;

wherein said communication parameters are effective to alter aspects of each said independent communication channel with regard to frequency-variation, spatial-variation, or time-variation of each said independent communication channel.

36. A method as in claim 35, wherein said communication parameters include antenna allocation, power allocation, channel allocation, modulation allocation, rate allocation, error code allocation, equalization parameter allocation, payload size allocation, ARQ allocation, or TDD framing allocation.

37. A method as in claim 35, wherein said optimizing includes adjusting a plurality of said parameters; whereby an effect of adjusting one of said parameters is maximized.

38. A method as in claim 35, wherein said optimizing includes adjusting a plurality of said parameters; whereby an effect of adjusting said parameters includes a decrease in intersymbol interference, intrasymbol interference, or transmission latency.

39. A method as in claim 35, wherein said optimizing includes selecting a set of limits for capacity and coverage of a communication system, said communication system including a base station controller and at least one customer premises equipment.

40. A method as in claim 35, wherein said optimizing includes selection with regard to optimal performance for each one of a plurality of individual communication links, in response to separate conditions for each said individual communication links, said conditions including interference conditions, multipath conditions, or combinations of interference conditions and multipath conditions.

41. A method as in claim 35, wherein said optimizing is responsive, for individual communication links, to optimal performance using an uplink path and a downlink path, said uplink path and said downlink path being operative in a duplex

communication system having a base station controller and customer premises equipment.

42. A method as in claim 35, wherein said optimizing is responsive, for individual communication links, to time-bounded services, voice application services, or video application services.

43. A method as in claim 35, wherein said set of parameters includes at least one MAC layer parameter, said at least one MAC layer parameter including payload size allocation, ARQ allocation, or TDD framing allocation.

44. A method as in claim 35, wherein said set of parameters includes at least one physical layer parameter, said at least one physical layer parameter including antenna location, power allocation, channel allocation, modulation allocation, rate allocation, error coding, or equalization parameters.

45. A method as in claim 35, wherein said time-varying adjustment is operative to simultaneously adjust multiple ones of said plurality in an integrated manner; so as to obtain an optimal set of said communication parameters.

46. A method as in claim 35, wherein said time-varying adjustment is responsive to a set of quality of service application requirements.

47. A method as in claim 35, wherein said time-varying adjustment is responsive to a set of time delays or time variations for application service latency.

48. A method as in claim 35, wherein said time-varying adjustment is responsive to a type of application service, including being responsive to voice services or video services.

49. A method as in claim 35, wherein said time-varying adjustment is responsive to at least one of: intersymbol interference, intrasymbol interference, fading.

50. A method, including

optimizing a set of parameters for a communication channel, said parameters including time-varying, frequency-varying, or spatially-varying parameters for said communication channel;

wherein said steps of optimizing include adjusting said set of parameters in an integrated manner for optimal performance, said optimal performance being responsive to interference conditions, multipath conditions, or combinations of interference conditions and multipath conditions.

51. A method as in claim 50, wherein said communication channel is subject to modulation using a plurality of: spatial separation of communication links, frequency separation of communication links, or time separation of communication links.

52. A method as in claim 50, wherein said performance includes responsiveness to a plurality of: multipath conditions, interference conditions.

53. A method as in claim 50, wherein said performance includes responsiveness to individual requirements for time bounded services, said time bounded services possibly including voice communication or video communication.

54. A method as in claim 50, wherein said performance includes responsiveness to requests for communication bandwidth using an uplink and a downlink.

55. A method as in claim 54, wherein said uplink and said downlink are responsive to communication between a base station controller and at least one customer premises equipment.

56. A method as in claim 54, wherein said uplink and said downlink are responsive to asymmetrical requests for communication bandwidth.

57. A method as in claim 54, wherein said uplink and said downlink are responsive to control using separate sets of said plurality of parameters.

58. A method, including

sending information in a system having a plurality of traffic flows, each said traffic flow having a link speed associated therewith, said link speeds possibly being different for differing traffic flows;

scheduling sending of said information using said plurality of traffic flows in response to said differing link speeds.

59. A method, including

sending information from a sender to a set of receivers using a TDMA frame, said TDMA frame including a frame descriptor element having information regarding link parameters for selected ones of said receivers, said frame descriptor element being disposed in a selected position within said TDMA frame and having a selected set of link parameters;

wherein said selected position, said selected set of link parameters, and a length value for said TDMA frame are each computable by each of said receivers without reference to a frame descriptor from an earlier said TDMA frame.